Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:	)	
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	)	
Response Efforts Undertaken	)	
During the 2017 Hurricane Season	)	
	)	
	)	**ET Docket 17-344**
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By: W. Lee McVey, PE Ret.	)	
W6EM	)	
PG-12-19879	)	
	)	
To: The Chief, Public Safety and	)	
Homeland Security Bureau	)	
	)	
	)	

REPLY to the COMMENTS of ARRL

The following is my Reply to the Comments of ARRL, *the National Association about Amateur Radio*, in the above captioned proceeding. It is timely filed in accordance with 47C.F.R.§1.415.

While it is important to emphasize that the Amateur Radio Service did play a significant role in the post-Hurricane Maria recovery events in Puerto Rico, it should be understood that *its most important role was for basic, point to point voice communications*. Communications that replaced damaged, out-of-service wired and wireless pathways.

It cannot be adequately covered in a few paragraphs that the need for Amateur Service participation is paramount following events that cripple or completely destroy infrastructure, leaving society with little more than basic necessities. Sometimes, as the effects of Hurricane Maria demonstrated, even basic necessities that we take for granted like potable water and electric power can be unavailable for extended periods of time.

1. In its response to Maria's impact on Puerto Rico, ARRL solicited and sponsored a group of volunteers to travel to Puerto Rico.[1] Twenty-two operators were dispatched, for something less than three weeks time, far fewer than the "Force of Fifty" that ARRL claims.[2] The volunteers were each supplied packaged, ARRL-owned radio equipment with which to operate while there, ostensibly to pass health and welfare information back and forth from the mainland using digital software and hardware. The equipment included five SCS-GmbH digital modems[3] that had the ability to send and receive PacTor III and IV Unspecified Codes (UCs) in conjunction with *Winlink* software on personal computers. Apparently, *only one of the modems was used* during the deployment and was set up at FEMA headquarters on the island.[4] ARRL stated that it had equipped each amateur with special software, but only five out of twenty-two actually could use the software, since there were only five modems dispatched.[5] There was no mention of having also sent along five personal computers in order to use all of the included modems.[6] ARRL obtained Special Temporary Authority[7] from the Commission to use the modems as their intentions of employing UCs through high symbol rate modems did not and does not comply with Part 97 regulations.[8] ARRL did not ask the US amateur community for volunteers to connect with those deployed. Perhaps a pre-destined mainland group had already been selected, or perhaps it was their intent to only connect with mainland automatic digital stations. Shortly thereafter, it was announced that the group and their equipment had been replaced by FEMA employees, who were part of the National Communication System SHARES organization.[9] Statements from some of the twenty-two who participated in Puerto Rican activities reflected that by far their most important function while there was to bridge missing voice communications paths on the island using VHF radio, and not digital mode communications with the mainland using *Winlink* software and the SCS-GmbH modems.[10]

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[1] September 25, 2017 Email from ARRL President R. Roderick to all ARRL members soliciting volunteers.
[2] ARRL Comments at 21.
[3] The ARRL Letter, October 5, 2017.
[4] ARRL Comments at 24.
[5] ARRL Comments at 22.
[6] ARRL made no mention [that] an equal number of personal computers were sent along in order for each set of *Winlink* software and SCS modems to have been used with some of the radio equipment.
[7] See DA-17-974, Issued October 5, 2017
[8] 47CFR§97.309(a)4.
[9] The ARRL Letter, October 19, 2017
[10] *Ibid*

2. After reading ARRL's Comments in this proceeding, apparently Rule Making 11708 was not a sufficient platform for ARRL to *beat its drums* of advocacy for approval of proprietary UCs PacTors III and IV. And now, opportunistically, it has *turned up the volume* after a group of experienced SCS modem operators were flown, all expenses paid, to Puerto Rico from the US mainland. Some reasons for not using UCs such as Pactors II, III and IV were delineated by many in the RM 11708 proceeding. For brevity, I will repeat some of my remarks and add emphasis, where appropriate:

A. In order to send and receive the PacTor UCs, both parties in a two-way communication must acquire SCS-GmbH modems. The cost of an SCS *Dragon* DR-7800 modem is now approximately $2,000, and a slightly less expensive DR-7400 modem about $1,400. As I understand it, no other, more affordable digital modems can be used to transmit and receive PacTor IV since it is a non-open-source, UC. Earlier PacTors II and III can be used only with SCS modems as well; as they, too, are non-open-source UCs. Less expensive, but still well above $1000 each. Perhaps exotic yacht owners will pay such prices to receive and send Internet *Sail Mail* messages and text via HF radio, but few amateurs will pay as much just to utilize proprietary digital codes.

B. In a true emergency, communication modes of choice should be those routinely used by a very large, geographically-dispersed amateur contingent. If, for nothing else, to improve the chances that a sufficient number will be available on both ends when needed to participate in unplanned, post-disaster communications. Not just limited to those present for planned drills or exercises; or to those who send and receive e-mails from their pleasure craft.

C. A digital data bandwidth limit of 2.8kHz should be specified in order to accommodate and contain high symbol rate digital signals. However, the present defined symbol rate limit is not adequate for reasonable throughput using multiple subcarrier coding and should be widened to accommodate all open-source, published-protocol Specified Codes (SCs) as defined in Part 97.309(a)4 of the Commission's rules. So long as bandwidth is respected, symbol rate need no longer be a constraint. Unless a

bandwidth is specified, it is possible, with modern digital signal processors, to transmit with bandwidths far exceeding 2.8kHz, obliterating nearby communications.

D. The Military Auxiliary Radio System (MARS) uses M110A,[11] an open source military standard digital code that can be sent and received from an ordinary personal computer employing what is known as "MS-DMT" software. No special modem is required and the software is freely available. However, it also has a symbol rate of 1200 baud, and requires a bandwidth of 2.8kHz, which, as of now, is unlawful to use on the amateur bands. M110A has great throughput; and is compatible with military digital communications. It should be recognized as an SC so that if the symbol rate limitation is lifted, it can be used when interoperability involving the Amateur Service and the military becomes necessary. MARS conducts interoperability drills each year, and it would be in the public interest to be able to demonstrate cross-band digital interoperability.

E. There are ample non-proprietary SCs that can be employed through any number of affordable modems or just personal computers by themselves, across the amateur community. These include, but are not limited to AMTOR, CLOVER, G-TOR, OLIVIA, JT-65, MT-63, PSK-31, WINMOR and the above mentioned M110A/STANAG.. Also, PacTor I, unlike PacTors II, III and IV, has had its code released and published. And, cost-effective modems are available from several sources that can readily send and receive PacTor I. Any revision to Part 97.309a(4) should clarify that only PacTor I is approved for use by US amateurs. If ARRL wants to continue to promote the use of *Winlink* terminal software for email forwarding, the software can be used along with *Winlink's* WINMOR, an open-source SC.

3. To summarize, ARRL's Comments have offered some good examples of amateur operators assisting where existing infrastructure and pathways were unusable. And, the Commission needs to intercede and proactively support installation and use of simple, low-visual-impact outdoor Amateur Service antennas at residential locations to ensure

[11] MIL-STD-188-110A

that an ample number of amateurs will be capable of effective operation post-disaster, to send and receive communications to and from impacted areas. However, to say that occasional use of an expensive digital modem for a couple of week's time was a significant part of amateur radio assistance in Puerto Rican Hurricane relief efforts would be a gross exaggeration. And, it speaks again of ARRL's ambitious and aggressive marketing tactics, pushing PacTor UCs to the detriment of the amateur community. Perhaps even posing a risk to US National Security; since deciphering PacTor UC transmissions can only be done through purchase and use of expensive, single-source modems from an offshore manufacturer.[12]

4. Common sense would dictate that a request from an organization claiming to be the national association *about* amateur radio would have emphasized the need for bilingual operators in soliciting a contingent to send to a Spanish-speaking territory to assist. ARRL did not ask for bilingual skills in its urgent email appeal from its president to most of its membership. Primarily, it asked that volunteers be licensed amateurs and experienced *Winlink* terminal software users.[13] A restrictive radio software skill set required of all twenty-two, but only necessary for, at most, five of those sent. From my own experience from having formerly resided in Central Florida, there are many bilingual amateur operators in Florida who could have better assisted with local communications if they had only been afforded ARRL sponsorship to make the journey. In fact, by incorporating mandatory experience with *Winlink* software in its solicitation for volunteers, and extolling its use in its instant Comments, ARRL not only reduced potential positive outcomes from the deployment, but *spoke volumes* of its apparent, pre-conceived plan to make the Puerto Rican operation primarily an SCS-GmbH PacTor III and IV *marketing campaign* to the Commission..

5. While expansion of digital symbol rates should be allowed within limited bandwidth, the Commission should not be unduly influenced by ARRL's claims of the need or purported benefits of revising its regulations to allow UCs PacTors II, III and IV onto the

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[12] Spezielle Communications Systeme GmbH & Co is located in Hanau, Germany

[13] Op. Cit., ARRL Roderick Email. *"There are very specific requirements and qualifications needed for this deployment; for instance, familiarity with Winlink, an Amateur Radio license of General Class or higher, and previous experience in disaster response."*

US HF amateur bands. To do so would open the door to the use of all sorts of *coded ciphers* in two-way radio communications, perhaps transforming the United States Amateur Radio Service from a tool for the enhancement of international relations, as denoted in regulations,[14] into a conduit of *Ill Will*.

Respectfully,

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February 20, 2018

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[14] 47CFR §97.1(e)